



# **training & certification course bulletin 1989/90**

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1989



**Environment  
Ontario**

**Jim Bradley  
Minister**

MOE  
Standards Development Branch  
LIBRARY

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**MEMORANDUM**

March 15, 1989

**TO:** Branch/Regional Directors  
Branch/Regional Managers/Supervisors  
District Officers

**FROM:** Frank E.W. Vu, Manager  
Training & Certification Section  
Human Resources Branch

**RE:** **Training & Certification Course Bulletin 1989/1990**

I am glad to forward to you a copy of our course bulletin for the 1989/90 training season. Additional copies are available upon request.

In attempting to provide you with high quality service, we have made a few changes regarding the focus and content of some of the courses to keep up with technological development. Examples of such courses include: Basic Waste-water Treatment; Surface Water Treatment; Activated Sludge; and Environmental Responders.

We are also going to put more emphasis on the quality of the courses by paying special attention to training needs analysis; course development and delivery; and course evaluation. This year we are offering four new courses: Solid Waste Management by Landfill; Pump Operation; Metal Finishing; and Instructional Techniques.

Please note the registration procedures on pages iv, v, and vi. Ministry applications must be submitted on MOE Form 1511 (2/87), sample at Appendix 38. So that registration fees can be recovered by journal entry, the appropriate budget codes must be included.

Comments on the type of courses, length of courses, content of courses, frequency of courses, location of courses, size of classes, suggestions for new courses, etc., are all welcome.

For additional services that the Training and Certification Section offers, please refer to Appendix 37.



FEWV:mm

Frank E. W. Vu, Manager

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**Ministry of the Environment  
Technical Training Program  
1989 – 1990**

This calendar should be used by individuals to assist in choosing those courses that meet immediate and future job and career growth needs.

The courses are specifically designed for personnel who are engaged in the protection and up-grading of the natural environment and human health.

Registration procedures are outlined on page iv. Additional information regarding registration may be obtained from:

Registration Secretary  
Training and Certification Section  
Human Resources Branch  
135 St. Clair Avenue West  
Toronto, Ontario  
M4V 1P5  
(416) 323-5165

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## COURSE INFORMATION

### Training Philosophy:

1. In general, programs employ the Behavioral Objectives Approach to Training (BOAT). A training manual, prepared for each course, as a reference text, provides information on the topics and lists objectives which tell the trainee what he must know and do to successfully complete the course. At the same time it reminds the instructor what he must teach, describe or demonstrate so that the performance of the trainee meets the required standards. To verify successful completion, both practical (hands-on) and written tests are administered to the trainees.
2. Instructors are obtained from many sources and have usually been involved in developing material for the courses. As part of their normal work they are usually also responsible for providing advice, guidance and practical assistance to the operational staff, so they understand the day-to-day problems faced in the field. Based on this knowledge and background, the instructor can deal with any relevant questions raised during the course. Furthermore, the instructor is identified to the trainee as a point of contact for advice on problems which might arise.

### Scope of Program:

3. A program of courses, is offered annually between September and June. In addition to the wide range of courses described in this bulletin, we offer specialized programs to our clients, such as Certification of Water and Waste-water Utility Operators, and In-House courses (see Appendix 37 for details).
4. Training programs offered by this Ministry are, in general, of five day duration (Monday to Friday incl.). They are described in the attached Appendices, 1-34:

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## Appendix:

1. Basic Wastewater Treatment ✓
2. Activated Sludge ✓
3. Wastewater Sludge Technology ✓
4. Digester Gas System Operation & Maintenance ✓
5. Op/Maintenance of Wastewater Collection Systems ✓
6. Op/Maintenance of Wastewater Pump Stations ✓
7. Control of Liquid Industrial Waste
8. Basic Water Treatment Operation
9. Surface Water Treatment
10. Op/Maintenance of Water Distribution Systems
11. Small Water Supply Systems Operator
12. Basic Gas Chlorination ✓
13. Laboratory Skills for Plant Operators ✓
14. Confined Space Entry
15. Instrumentation In Process Control ✓
16. Preventive Maintenance ✓
17. Advanced Water and Wastewater Treatment ✓
18. Municipal & Private Water Treatment for EO's
19. Municipal & Private Wastewater Treatment for EO's ✓
20. Air Abatement for EO's
21. Industrial Wastewater Treatment for EO's
22. Waste Management for EO's
23. Visible Emissions Identification Certificate
24. Environmental Law
25. Sewer and Watermain Design
26. Construction of Sewers & Watermains for Inspectors
27. Introductory Environmental Noise
28. Environmental Noise Certificate
29. Environmental Noise in Land Use Planning
30. Environmental Responders
31. Waste Disposal by Landfilling
32. Waste Management in the Metal Finishing Industry
33. Pump Operation
34. Professional Development for Instructors of MOE/MEA Technical Courses

5. The program schedule is at Appendix 35.

## Prerequisites:

6. (a) Prerequisites are specified for some courses. Employers must ensure that course candidates meet these requirements. If an application is received from a candidate lacking the course prerequisites, it will not be accepted.
- (b) Certain advanced courses require the Ministry Basic Water or Sewage Course or equivalent as a prerequisite. Equivalents to the Ministry Basic Courses include the courses previously offered by the OWRC.
- (c) Certain courses, because of prerequisites and/or course design, are restricted to specific groups.

## Course Capacity:

7. The capacity of each course is shown on Appendix 35 Program Schedule.

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## Application Procedures:

8. (a) Those attending Ministry technical training courses fall into two classifications:
  - (1) Ontario Government employees
  - (2) Staff other than (1) above
  - (b) Applications for Ministry of the Environment employees will be submitted on the MOE form 1511 (2/87), **Request/Authorization for Staff Development for Courses and Conferences** (see sample at Appendix 38).
  - (c) Employees of organizations of the Provincial Government other than the Ministry of the Environment will submit a letter requesting registration and include budget codes for journal entries.
  - (d) All other applications will be by letter and should include the registration fees, payable by cheque/money order to the **Treasurer of Ontario**.
  - (e) No verbal applications will be accepted.
  9. The following information will be included in letters of application from non-Ministry personnel:
    - (a) Course and date. An acceptable alternate, if available, should be shown.
    - (b) Full name of applicant and home address.
    - (c) Job title, address of employment and department or office.
  10. An application should be forwarded by mail to:

Ministry of the Environment  
Training & Certification Section  
135 St. Clair Avenue West  
Toronto, Ontario  
M4V 1P5

**Attention: Registration Secretary**

11. If a course is over-subscribed, selection of candidates will be based on date of receipt of application. As soon as possible after its receipt, the individual's employer will be notified if the application is accepted. If the course of first choice is over subscribed and an alternate has been shown on the application, the nominee will be listed for the alternative course (if space is available), subject to confirmation by the employer.

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### **Registration Fee:**

12. The required registration fee for each course is stated in the appropriate appendix. Registration fees must accompany the applications from all those other than Province of Ontario Government Employees, and
  - (a) for all courses except MEA/MOE co-sponsored courses (Appendices 25 and 26), the cheque or money order must be made payable to **The Treasurer of Ontario**.
  - (b) for MEA/MOE co-sponsored courses (Appendices 25 and 26) the cheque or money order must be made payable to the **Municipal Engineers Association of Ontario**.
  - (c) fees are refundable only if a cancellation is notified at least one month prior to the course.
  - (d) requests for transfers will only be accepted if notified fifteen days prior to the course.

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## **Pre-Course Study:**

13. Prior to a course, an information package will be forwarded to each applicant. This will include general course information, a sketch map showing course location and, in most cases, reference material for pre-course study. It is essential that employers encourage applicants to review the study material provided. For certain courses, the applicant will be required to submit solutions to problems forwarded with study material.

## **Course Completion:**

14. The appropriate appendix shows the minimum average to be attained for successful completion of the course. A candidate's results and a certificate or seal will be forwarded to his employer, who is responsible for informing the individual.
15. As do many other organizations, such as the WPCF, AWWA and APWA, the Ontario Ministry of the Environment now awards Continuing Education Units (CEUs) to participants who successfully complete certain courses. A permanent record of CEUs awarded to individuals will be maintained by the Training and Certification Section. A participant may request this record to use, if necessary, to meet requirements for:
  - (a) Documentation of continuing qualifications for certification of operational staff of a water or wastewater utility;
  - (b) Evidence of personal and vocational growth and adjustment to meet changing career demands;
  - (c) Demonstration of a conscious effort towards personal development.

CEUs are awarded on the basis that one (1) CEU is equal to ten contact hours of formal instruction in job related training. Thus, for example, 3.0 CEUs will be awarded for successful completion of the Activated Sludge Course, since it involves 30 hours of formal instruction. The assigned value is shown in the appropriate appendix in this publication.

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## **Training Facilities:**

16. (a) These are located at the Brampton Training Centre. The sketch map at Appendix 39 shows the location.
- (b) Training conducted outside of Toronto will be held in suitable accommodation obtained specifically for the session.
- (c) Course locations are shown at Appendix 35.

## **Transportation and Accommodation:**

17. These arrangements, including reservations, are the responsibility of the trainee. Appendix 36 indicates the motel/hotel area which is within reasonable proximity to the training facilities. A list of hotels with approximate room costs is at Appendix 36.
18. Employers must ensure that trainees on arrival at the training location are in possession of sufficient funds to meet anticipated expenses.

## **Training Manuals:**

19. Training manuals published by the Ministry of Environment are available for purchase from:

Publications Services  
Ministry of Government Services  
880 Bay Street, (5th Floor)  
Toronto, Ontario  
M7A 1N8  
965-3769

These include:

Basic Sewage Treatment Operation	\$6.50
Activated Sludge Process	7.00
Primary Treatment and Sludge Digestion	7.00
Basic Water Treatment Operation	7.50
Surface Water Treatment Operation	7.00
Basic Gas Chlorination	6.00
Preventive Maintenance	7.50
Digester Gas System Maintenance	7.00
Water Distribution System Op/Maintenance	7.50
Control of Industrial Waste in Municipalities	7.00
Mathematics for Water & Wastewater Operators	4.00
Confined Space Entry	5.00
Lab Skills for Plant Operators, Vol. 1	7.50
Lab Skills for Plant Operators, Vol. 2	7.50

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20. Manuals published by The Ontario Municipal Engineers Association include:

Sewer & Watermain Design Manual	\$15.00
Sewer & Watermain Construction Inspectors Manual	\$15.00

These are available for purchase by writing to:

Mr. Don J. McDonald  
MEA Treasurer & Publications Secretary  
20 Pitt Street  
Cornwall, Ontario  
K6J 3P2

Telephone (613) 932-1515

21. Prices are subject to change without notice.

22. Textbooks provided in the Wastewater Collection and Small Water Supply Systems courses are:

Operation and Maintenance of Wastewater Collection Systems, Vol. 1  
Small Water System Operation and Maintenance

These are American publications and prices can vary. They can be ordered from:

Kenneth Kerri  
Office of Water Programs  
California State University, Sacramento  
6000 J. Street  
Sacramento, California  
U.S.A. 95819 — 2794

## **COURSE DESCRIPTION BASIC WASTEWATER TREATMENT**

### **Purpose:**

The Basic Wastewater Treatment Course is designed primarily for operators in training and to increase on-the-job efficiency of wastewater treatment plant operators. The program stresses "the need to know" of all processes associated with wastewater treatment. This course is a prerequisite to the Activated Sludge Course and the Wastewater Sludge Technology Course. CEU Value 3.0.

### **Scope:**

The course covers the following topics:

- A. WASTEWATER CHARACTERISTICS
- B. BACTERIOLOGY/MICROBIOLOGY
- C. PRIMARY TREATMENT
- D. THE ACTIVATED SLUDGE PROCESS
- E. SLUDGE DIGESTION
- F. SLUDGE HANDLING
- G. CHLORINATION/DISINFECTION
- H. LABORATORY TESTING
- I. SAMPLING/RECORD KEEPING
- J. SAFETY

### **Pre-Course Familiarization:**

Pre-course study material will be provided. When preparing to attend this course, an applicant must:

- (a) Review the Ministry manual, Basic Wastewater Treatment;
- (b) Complete the exercise in the Ministry manual, Mathematics for Water and Wastewater Operators.

### **Prerequisites:**

- (a) Employment and desirably 6 months experience in the operation of a wastewater treatment plant.
- (b) Grade XII academic standing or equivalent.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION ACTIVATED SLUDGE**

### **Purpose:**

This course emphasizes process control and troubleshooting. It is specifically directed at an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of an activated sludge plant. CEU Value 3.0.

### **Scope:**

The workshop which includes considerable "hands-on" participation covers the following:

- A. ACTIVATED SLUDGE OPERATING PRINCIPLES AND PROCESSES
- B. FACTORS AFFECTING THE PROCESS
- C. SAMPLING AND FLOW MEASUREMENT
- D. MONITORING REQUIREMENTS
- E. IDENTIFICATION AND SOLUTION OF OPERATING PROBLEMS
- F. PHOSPHORUS REMOVAL
- G. MICROSCOPIC EXAMINATION
- H. LABORATORY TESTS INCLUDING D.O., pH, BOD, SUSPENDED SOLIDS, SETTLING TEST, OXYGEN UPTAKE
- I. ACTIVATED SLUDGE CALCULATIONS
- J. STOCK SOLUTIONS AND CHEMICAL FEED RATE CALCULATIONS

### **Pre-Course Familiarization:**

Pre-course study material will be provided. When preparing to attend this workshop an applicant must:

- (a) Review the Ministry manual, Activated Sludge Process;
- (b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

### **Prerequisites:**

Successful completion of the Ministry of the Environment Basic Wastewater Treatment Course; or equivalent.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION WASTEWATER SLUDGE TECHNOLOGY**

### **Purpose:**

Emphasizes the current technologies of sludge management used in the overall wastewater treatment process. Physical, chemical and biological sludge handling processes will be highlighted. The course includes hands-on laboratory instruction and disposal of processed sludges. CEU Value 3.0.

### **Scope:**

The course which includes "hands-on" participation covers the following topics:

- A. SEWAGE AND SLUDGE CHARACTERISTICS
- B. SLUDGE CONDITIONING
- C. SLUDGE DIGESTION
- D. DIGESTER GAS SYSTEMS
- E. DEWATERING
- F. LABORATORY ANALYSIS
- G. SLUDGE UTILIZATION
- H. INCINERATION
- I. LANDFARMING AND LANDFILLING
- J. EQUIPMENT MAINTENANCE

### **Pre-Course Familiarization:**

Pre-course study material will be provided. When preparing to attend this workshop, the applicant must:

- (a) Review the course training manual;
- (b) Complete the exercises in the Ministry manual Mathematics for Water and Sewage Operators.

### **Prerequisites:**

Successful completion of the Ministry Basic Wastewater Treatment Course or equivalent.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

**COURSE DESCRIPTION  
DIGESTER GAS SYSTEMS OP/MAINTENANCE****Purpose:**

As required by the Energy Act 1971 and related Regulations, the course is designed to upgrade the knowledge and skills of personnel who operate and maintain the gas system in a wastewater treatment plant. In addition to the course final examination, the individual may write on recommendation from the employer, the Ministry of Consumer and Commercial Relations (MCCR) examination for certification as a Maintenance Gas Fitter. CEU Value 3.0.

**Scope:**

The course covers the following topics:

- A. DIGESTION PROCESS AND GAS PRODUCTION
- B. DIGESTER GAS SYSTEM COMPONENTS
- C. GAS PIPING
- D. FUELS AND COMBUSTION
- E. SAFETY
- F. FUELS SAFETY REGULATIONS AND CODES

**Pre-Course Familiarization:**

When preparing to attend this course, applicants should familiarize themselves with digester operations, and review the Energy Act 1971, related Regulations and the Installation Codes for Natural Gas (CAN 1-B149.1-M80), Propane (CGA 149.2-1976) and Oil Burning Equipment (CSA Standard B139-71).

**Prerequisites:**

The applicant must be employed in the maintenance of the gas system in a wastewater treatment plant. Desirably the applicant should have completed the MOE Wastewater Sludge Technology and have training in the procedures for safe entry into confined spaces.

**Passing Grade:**

- (a) 70 per cent
- (b) A passing grade of 75 per cent must be attained on the MCCR test for certification as Maintenance Gas Fitter.

**Registration Fee:**

\$60.00

-plus-

\$21.00 payable to **Treasurer of Ontario** if the individual elects to write the MCCR Certification examination.

## **COURSE DESCRIPTION**

### **OPERATION & MAINTENANCE OF**

### **WASTEWATER COLLECTION SYSTEMS**

#### **Purpose:**

The course is designed for new staff and to increase on-the-job efficiency of others. On completion of this course and the associated MOE courses on preventive maintenance the individual will understand the operation of a collection system and be capable of operating and maintaining the system and correcting malfunctions of equipment. CEU Value 3.0.

This course is mostly for personnel who are directly involved in Collection Systems, Maintenance and repair.

#### **Scope:**

The following topics will be covered:

- A. DESIGN PARAMETERS
- B. PIPE MATERIALS
- C. LIFT STATIONS
- D. PLANNING FOR EMERGENCY SERVICES
- E. FLOW MEASUREMENT AND CONTROL
- F. INSPECTION AND TESTING
- G. CLEANING, MAINTENANCE AND REPAIR
- H. RECORDS AND ORGANIZATION
- I. SAFETY

#### **Pre-Course Familiarization:**

An applicant must review the reference notes on Operation and Maintenance of Wastewater Collection Systems.

#### **Prerequisites:**

- (a) Employment in the operation and/or maintenance of a wastewater collection system;
- (b) Desirably Grade XII academic standing.

#### **Passing Grade:**

70 per cent

#### **Registration Fee:**

\$60.00

-plus-

\$45.00 There is an additional charge of \$45.00 for the textbook. Please make a separate cheque or money order for this amount payable to **The Treasurer of Ontario**.

## **COURSE DESCRIPTION OPERATION AND MAINTENANCE OF WASTEWATER PUMP STATIONS**

### **Purpose:**

This course is designed for entry level operations staff and to increase on-the-job efficiency of others. On completion of this course, and the associated courses on preventive maintenance, the individual will be capable of operating and maintaining lift stations and related equipment. CEU Value 3.0.

### **Scope:**

The following topics will be covered:

- A. SEWAGE CHARACTERISTICS
- B. SAFETY/WORKING IN CONFINED SPACES
- C. STATION CONTROL SYSTEMS
- D. PUMP AND MOTOR APPLICATIONS
- E. PUMP PERFORMANCE
- F. STATION START-UP AND SHUT-DOWN
- G. ROUTINE AND PREVENTIVE MAINTENANCE
- H. RECORDS AND INSPECTION
- I. PACKING AND MECHANICAL SEALS

### **Pre-Course Familiarization:**

An applicant must review pre-course study material.

### **Prerequisites:**

- (a) Employed in the operation and/or maintenance of a wastewater lift station;
- (b) Desirably Grade XII academic standing.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION CONTROL OF LIQUID INDUSTRIAL WASTE**

### **Purpose:**

This five day course is designed for those responsible for the enforcement of a Sewer Use By-Law. It will provide knowledge of and solutions to problems which result from industrial waste discharges into a storm sewer, a wastewater collection system or a wastewater treatment plant. CEU Value 3.0.

### **Scope:**

The following topics will be covered:

- A. CHARACTERISTICS, PROBLEMS AND GENERAL TREATMENT METHODS OF SELECTED LIQUID INDUSTRIAL WASTES
- B. FLOW MEASUREMENT AND SAMPLING
- C. SURVEYS AND INSPECTIONS
- D. AFFECTS OF INDUSTRIAL WASTES ON MUNICIPAL SEWAGE WORKS
- E. REGULATIONS FOR HAULAGE AND DISPOSAL
- F. SAFETY
- G. MUNICIPAL CONTROL PROGRAM — SEWER USE BY-LAWS

### **Pre-Course Familiarization:**

Pre-course study material, including a manual, will be provided. When preparing to attend, applicants should familiarize themselves with all aspects of the responsibilities of their organizations for the control of liquid industrial wastes, the Water Resources Act and the municipal Sewer Use By-Law.

### **Prerequisites:**

Those attending should have a good knowledge of wastewater treatment operations and have some responsibility for the functions dealt with on the course.

### **Passing Grade:**

Not applicable

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION BASIC WATER TREATMENT OPERATION**

### **Purpose:**

The Basic Water Treatment Operation Course is designed primarily for operators in training and to increase on-the-job efficiency of water treatment plant operators. The program stresses "the need to know" of all processes associated with water treatment. This course is a prerequisite to the Surface Water Treatment Course. CEU Value 3.0.

### **Scope:**

The course covers the following topics:

- A. WATER SOURCES
- B. PHYSICAL AND CHEMICAL CHARACTERISTICS
- C. COAGULATION, FLOCCULATION AND SEDIMENTATION
- D. FILTRATION
- E. CHLORINATION
- F. WATER MICROBIOLOGY AND SAMPLING
- G. SAFETY
- H. RECORDS KEEPING
- I. BASIC LABORATORY TESTS

### **Pre-Course Familiarization:**

Pre-course study material will be provided. When preparing to attend this course, an applicant must:

- (a) Review the Ministry manual, Basic Water Treatment Operation;
- (b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

### **Prerequisites:**

- (a) Employment and desirably six months experience in the operation of water treatment plants;
- (b) Desirably Grade XII academic standing.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION SURFACE WATER TREATMENT WORKSHOP**

### **Purpose:**

The Surface Water Treatment Course is designed to increase the knowledge of experienced water treatment plant operators. It is specifically directed to an operator employed as, or likely to be promoted to, shift foreman, operator-in-charge or chief operator of a water treatment plant. CEU Value 3.0.

### **Scope:**

The course which includes considerable "hands-on" participation covers the following topics:

- A. BASIC WATER CHEMISTRY
- B. MICROBIOLOGICAL CONSIDERATIONS
- C. WATER TREATMENT CHEMICALS
- D. COAGULATION
- E. FILTRATION
- F. TASTE AND ODOUR CONTROL
- G. LABORATORY TESTS
- H. PROBLEM SOLVING
- I. STOCK SOLUTION PREPARATION
- J. DOSAGE CALCULATIONS AND CHEMICAL FEED RATES

### **Pre-Course Familiarization:**

Pre-course study material will be provided. When preparing to attend this workshop an applicant must:

- (a) Review the Ministry manual, Surface Water Treatment;
- (b) Complete the exercises in the Ministry manual, Mathematics for Water and Sewage Operators.

### **Prerequisites:**

Successful completion of the Ministry of the Environment Basic Water Treatment Operation course, or equivalent.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION**

### **OPERATION AND MAINTENANCE OF**

### **WATER DISTRIBUTION SYSTEMS**

#### **Purpose:**

This course is designed for new staff and to increase on-the-job efficiency of others. On completion of this course and the associated MOE workshop on preventive maintenance, the individual will be capable of operating and maintaining water distribution systems, correcting malfunctions of equipment and performing quality control tests. CEU Value 3.0.

#### **Scope:**

The following topics will be covered:

- A. WATER SOURCES AND TREATMENT
- B. FACTORS IN PLANNING AND DESIGN
- C. WATER QUALITY OBJECTIVES
- D. WATERMAIN PIPES, AND JOINTS
- E. APPURTENANCES
- F. HYDRAULICS
- G. LEAK DETECTION, REPAIR, THAWING, RESTORATION
- H. CLEANING, FLUSHING, DISINFECTION, CROSS CONNECTIONS
- I. REPORTS AND RECORDS, PUBLIC RELATIONS
- J. SAFETY
- K. CORROSION

#### **Pre-Course Familiarization:**

The applicant must review pre-course study material including the Ministry manual, Operation and Maintenance of Water Distribution Systems.

#### **Prerequisites:**

- (a) Employed in operating and/or maintaining a water distribution system;
- (b) Desirably Grade XII academic standing.

#### **Passing Grade:**

70 per cent

#### **Registration Fee:**

\$60.00

**COURSE DESCRIPTION**  
**SMALL WATER SUPPLY SYSTEMS OPERATOR****Purpose:**

The Water Supply Systems Operator Course is designed to increase the knowledge and skills of inexperienced operators operating and maintaining small systems which employ minimum treatment. CEU Value 3.0.

**Scope:**

The course will cover the following topics:

- A. CHARACTERISTICS OF GROUND WATER
- B. WELL PUMPS AND MAINTENANCE
- C. TYPES OF VALVES AND MAINTENANCE
- D. METER MAINTENANCE
- E. SMALL PLANT WATER TREATMENT
- F. DISINFECTION
- G. SAFETY
- H. STORAGE FACILITIES
- I. CORROSION
- J. THAWING WATERMAINS
- K. HYDRAULICS
- L. RESIDUAL TESTING

**Pre-Course Familiarization:**

Pre-course study material will be provided.

**Prerequisites:**

- (a) Six to twelve months experience in a water supply system.
- (b) Desirably Grade XII Academic Standing.

**Passing Grade:**

70 per cent

**Registration Fee:**

\$60.00

-plus-

\$45.00 There is an additional charge of \$45.00 for the textbook. Please make a separate cheque or money order for this amount, payable to the **Treasurer of Ontario**.

## **COURSE DESCRIPTION BASIC GAS CHLORINATION**

### **Purpose:**

The Basic Gas Chlorination Course is designed to familiarize the new or inexperienced operator with the operation of various types of gas chlorination equipment, as well as to teach safety, maintenance and troubleshooting procedures. CEU Value 3.0.

### **Scope:**

The course which includes considerable "hands-on" participation covers the following topics:

- A. CHLORINATION THEORY
- B. COMPONENTS OF A GAS CHLORINATION INSTALLATION
- C. CONTROL SYSTEMS
- D. STORAGE AND HANDLING OF CHLORINE GAS CYLINDERS
- E. SAFETY PRACTICES
- F. CHLORINATION EQUIPMENT AND COMPONENTS
- G. START-UP AND SHUT-DOWN PROCEDURES
- H. GENERAL MAINTENANCE
- I. TROUBLESHOOTING
- J. CHLORINATION LABORATORY TESTS

### **Pre-Course Familiarization:**

Pre-course study material, including the Basic Gas Chlorination manual, will be provided.

### **Prerequisites:**

Employment in a water or wastewater treatment plant or as an operator of gas chlorination equipment used in industry or recreational facilities.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION** **LABORATORY SKILLS FOR PLANT OPERATORS**

### **Purpose:**

This course is designed to provide operators with the basic skills to carry out in-plant testing and analysis. The curriculum covers techniques, procedures and tests which provide information for day-to-day process control. A successful candidate will be capable of performing the laboratory tests in either a water or wastewater treatment environment. CEU Value 3.0

### **Scope:**

The following topics will be covered:

- A. INTRODUCTORY LABORATORY CHEMICAL PRINCIPLES
- B. LABORATORY TECHNIQUES INCLUDING SAFETY
- C. OPERATION OF LABORATORY INSTRUMENTS
- D. QUALITY CONTROL
- E. LABORATORY TESTING USING:
  - 1. Turbidimeters
  - 2. Spectrophotometers
  - 3. Colour Comparators
  - 4. Amperometric Titrators
  - 5. Microscope
  - 6. Various Lab Glassware
  - 7. Jar Testers
  - 8. D.O. Meters
  - 9. Analytical Balance
  - 10. Bacti Test Procedures:
    - MF Unit
    - P/A Test

### **Pre-Course Familiarization:**

Pre-course study material will be provided. Applicants must ensure that they are knowledgeable in water and wastewater treatment processes.

### **Prerequisites:**

- (a) Two or three years experience in plant operations;
- (b) Successful completion of the Ministry of Environment Basic Wastewater Treatment course and/or Basic Water Treatment Operations course;
- (c) Desirably successful completion of the Ministry of Environment Activated Sludge Course and/or Wastewater Sludge Technology and/or Surface Water Treatment Course, or acceptable equivalents.

### **Passing Grade:**

70 per cent in written examination and demonstrated ability to carry out laboratory analyses.

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION CONFINED SPACE ENTRY**

### **Purpose:**

This five day course takes a generic approach to the topic and is suitable for operations and supervisory personnel alike. Hands on experience for the participants reinforces the lecture theory given in class. Candidates have an opportunity to use the varied types of equipment and try different methods in performing actual confined space entries. Safe practices and procedures for entry and the correct operation and maintenance of equipment is emphasized through demonstration and practice. CEU Value 3.0.

### **Scope:**

The course includes presentations and “hands-on” practice of the following topics:

- A. SAFETY REQUIREMENTS INCLUDING A REVIEW OF THE OCCUPATIONAL HEALTH AND SAFETY ACT, ASSOCIATED REGULATIONS AND MOE SAFETY POLICY
- B. PHYSICAL AND ATMOSPHERIC HAZARDS OF CONFINED SPACES
- C. PROTECTIVE EQUIPMENT
- D. RESPIRATORY PROTECTION
- E. ATMOSPHERIC SENSING AND DETECTION
- F. ENTRY PROCEDURES
- G. EMERGENCY AND RESCUE TECHNIQUES

### **Pre-Course Familiarization:**

Pre-course study material will be provided. Attendees should review the manual, the Occupational Health and Safety Act and Regulations for Industrial Establishments. All candidates should have a copy of the Act and Regulations in their possession prior to attending the workshop. These are available from Publication Services at the address listed on page vii of this brochure.

### **Prerequisites:**

Desirably, candidates for this workshop should possess a First Aid certificate and be trained in Cardio-Pulmonary Resuscitation. In addition, all candidates should be in good physical condition so as to perform the required hands-on tasks.

### **Passing Grade:**

70 per cent in a written examination and the demonstrated technical skills to safely enter a confined space.

### **Registration Fee:**

\$60.00

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## **COURSE DESCRIPTION**

### **INSTRUMENTATION IN PROCESS CONTROL**

#### **Purpose:**

This course is designed to increase the knowledge of plant personnel in the application of instrumentation in water supply and wastewater treatment facilities. The curriculum deals with identification and description of various process control loops, why they are needed, typical methods of control including the types of instruments used in water and wastewater process control systems. It is an extension of training for operators and plant maintenance staff. CEU Value 3.0.

#### **Scope:**

The course includes presentations on the following topics:

- A. INTRODUCTION TO PROCESS VARIABLES, MANUAL AND AUTOMATIC CONTROL
- B. BASIC MODES OF CONTROL
- C. CONTROL FUNCTION
- D. FACTORS OF PROCESS CONTROL
- E. FEEDBACK CONTROL LOOPS
- F. SENSING DEVICES, TEMPERATURE, PRESSURE LEVEL
- G. TRANSMITTERS AND FINAL CONTROL ELEMENTS
- H. CONTROL MODES - TWO POSITION AND PROPORTIONAL CONTROL
- I. FLOW MEASUREMENT
- J. PREVENTIVE MAINTENANCE
- K. PROCESS OPERATION BY COMPUTER
- L. TOUR OF A WASTEWATER TREATMENT PLANT PROCESS CONTROL SYSTEM

#### **Pre-Course Familiarization:**

Pre-course study material will be provided. Attendees should familiarize themselves with the process control instrumentation of the utility at which they work.

#### **Prerequisites:**

The applicant should have a good working knowledge of water and/or wastewater utility operation, and;

- (a) Two or three years experience in utility operations;
- (b) Successful completion of Ministry of Environment course in
  - Basic Wastewater Treatment, or Basic Water Treatment Operations
  - Preventive Maintenance Course
  - Or Acceptable Equivalents.

#### **Passing Grade:**

70 per cent

#### **Registration Fee:**

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\$60.00

## **COURSE DESCRIPTION PREVENTIVE MAINTENANCE**

### **Purpose:**

The Preventive Maintenance Course is designed to increase the knowledge and on-the-job efficiency of an operator or maintenance personnel who has responsibility for maintaining water and wastewater plant equipment. It will teach the participant good practices which are essential to achieve and sustain efficient operations. CEU Value 3.0.

### **Scope:**

The course which includes "hands-on" participation covers the following topics:

- A. TYPES OF PUMPS
- B. DRAWINGS AND EQUIPMENT MANUALS
- C. MAINTENANCE OF PIPING AND VALVES
- D. LUBRICATION
- E. BEARINGS
- F. CHARACTERISTICS OF MATERIAL PUMPED
- G. PUMP SYSTEM CHARACTERISTICS
- H. PACKING AND MECHANICAL SEALS
- I. PUMP TROUBLESHOOTING
- J. MAINTENANCE OF STANDBY POWER UNITS
- K. ELECTRIC MOTORS

### **Pre-Course Familiarization:**

Pre-course study material, including the Preventive Maintenance Course manual, will be provided.

### **Prerequisites:**

The candidate must be employed in water or wastewater treatment utility operations and/or maintenance.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

**COURSE DESCRIPTION**  
**ADVANCED WATER/WASTEWATER TREATMENT****Purpose:**

This three day course is designed to upgrade the knowledge of chief operators and plant superintendents. The topics cover new treatment methods procedures and technologies. CEU Value 3.0.

**Scope:**

The course will deal with timely topics, such as, but not limited to, those listed below:

- A. O & M PROBLEMS WITH RESERVOIRS
- B. MUNICIPAL WATER TANK COATINGS
- C. EMERGENCY PROCEDURES
- D. USE OF ACTIVATED CARBON
- E. MAXIMIZING COAGULATION EFFECTIVENESS
- F. EFFICIENT FILTER OPERATION
- G. CONSULTING ENGINEERING ASPECTS OF PLANT DESIGN
- H. HYDROGEN SULPHIDE REMOVAL
- I. TRENDS IN SLUDGE DEWATERING AND THICKENING
- J. MARSHLAND TREATMENT OF WASTEWATER
- K. ULTRA-VIOLET TREATMENT OF WASTEWATER
- L. CATHODIC PROTECTION OF PLANT EQUIPMENT
- M. AERATION TANK EXPERIMENTS
- N. GUIDELINES FOR ACCEPTING LIQUID WASTE
- O. CURRENT LEGAL ISSUES AS RELATED TO PLANT OPERATIONS
- P. COMPUTERS IN WATER AND WASTEWATER PLANT OPERATIONS
- Q. HEALTH AND SAFETY ISSUES

**Pre-Course Familiarization:**

Pre-course study material will not be provided. Those planning to attend should review publications dealing with secondary and tertiary water and wastewater treatment.

**Prerequisites:**

Desirably:

- (a) Two to three years operational experience in a water and/or wastewater treatment plant, as a chief operator or superintendent;
- (b) Successful completion of the Ministry of the Environment Activated Sludge Course and/or Surface Water Treatment Course, or equivalent.

**Passing Grade:**

Not Applicable.

**Registration Fee:**

\$60.00

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## **COURSE DESCRIPTION MUNICIPAL AND PRIVATE WATER TREATMENT FOR EO<sub>S</sub>**

### **Purpose:**

This course is designed for Ministry new-entry personnel responsible for monitoring municipal and private water supplies, or existing staff inexperienced in this field. An overview of water treatment practices is given as well as pertinent information in the subject areas of inspection, legislation, grants, approvals and complaints. CEU Value 3.0.

### **Scope:**

- A. UNIT TREATMENT PROCESSES
- B. DISINFECTION
- C. INSTRUMENTATION, AUTOMATION, CONTROL
- D. DISTRIBUTION SYSTEMS
- E. CONSUMER TREATMENT METHODS
- F. SAMPLING
- G. INSPECTION
- H. SAFETY
- I. LEGISLATION
- J. GRANTS
- K. APPROVALS
- L. ENVIRONMENTAL ASSESSMENT
- M. EXOTIC CONTAMINANTS
- N. COMPLAINTS

### **Pre-Course Familiarization:**

When preparing to attend this course, applicants should familiarize themselves with all aspects of water supply operations. Reference material will be provided.

### **Prerequisites:**

Attendance is restricted to those persons responsible for regulatory agency functions related to water supply operations.

### **Passing Grade:**

Not applicable.

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION**

### **MUNICIPAL & PRIVATE WASTEWATER TREATMENT FOR EO<sub>S</sub>**

#### **Purpose:**

This course is principally designed for new MOE Environmental Officers and to increase on-the-job efficiency of others. Case studies will be presented for consideration and discussion. Safety awareness will be emphasized. Wastewater treatment unit processes will be examined in detail. CEU value 3.0.

#### **Scope:**

The following topics will be covered:

- A. UNIT PROCESSES
- B. EFFLUENT QUALITY
- C. INSPECTION
- D. EPA PART VII
- E. SLUDGE TREATMENT AND DISPOSAL
- F. LEGISLATION & ENVIRONMENTAL APPROVALS
- G. GRANT APPLICATION
- H. SAFETY
- I. INVESTIGATION AND ENFORCEMENT
- J. MISA

#### **Pre-Course Familiarization:**

Pre-course study material will be provided. Applicants must ensure that they are familiar with the reference material and are prepared to discuss the topics in group discussions.

#### **Prerequisites:**

Attendance is restricted to those persons responsible for regulatory agency functions related to wastewater treatment.

#### **Passing Grade:**

70 per cent

#### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION AIR ABATEMENT FOR EO<sub>S</sub>**

### **Purpose:**

This five day course to familiarize personnel with air pollution abatement is directed primarily at Ministry new entry personnel or existing staff, inexperienced in industrial air abatement functions. An overview of air contaminating process and control technologies, as practiced by industries in Ontario, is provided. The curriculum also includes relevant subject matter in the areas of legislation, inspection, pollution measurement and sampling. It is a prerequisite for more advanced training related to abatement methodologies employed in specific industries. CEU Value 3.0.

### **Scope:**

- A. LEGISLATION
- B. AIR CONTAMINATING PROCESSES, CONTAMINANTS AND EFFECTS
- C. CONTROL CONCEPTS
- D. METEOROLOGY
- E. ATMOSPHERIC HAZARDOUS CONTAMINANTS
- F. AIR POLLUTION MEASUREMENT AND SAMPLING
- G. ODOURS
- H. COMBUSTION
- I. INCINERATION AND INCINERATORS
- J. HANDLING COMPLAINTS
- K. TECHNICAL SUPPORT RESOURCES
- L. ENVIRONMENTAL APPROVAL PROCESS
- M. INTERFACE WITH RESOURCES OF OTHER JURISDICTIONS

### **Pre-Course Familiarization:**

When preparing for this course an applicant must study the reference material which will be provided.

### **Prerequisites:**

An applicant must be responsible for functions related to air pollution abatement.

### **Passing Grade:**

Those trainees who achieve a passing grade of 70 per cent will be awarded a certificate.

### **Registration Fee:**

\$60.00

**COURSE DESCRIPTION**  
**INDUSTRIAL WASTEWATER TREATMENT FOR EO<sub>S</sub>****Purpose:**

This course is principally designed for new MOE Environmental Officers and to increase the knowledge of the field abatement and enforcement personnel in industrial wastewater treatment processes. An overview of the current wastewater treatment technologies as practiced in Ontario industries is presented. Also included is relevant subject matter dealing with regulatory requirements. CEU Value 3.0.

**Scope:**

The course includes presentations and discussions of the following topics:

- A. UNIT TREATMENT PROCESS
- B. INSPECTION AND RECORDS
- C. SAFETY
- D. LEGISLATION AND ENVIRONMENTAL APPROVALS
- E. INVESTIGATIONS AND ENFORCEMENT
- F. MISA PROGRAM
- G. FIELD TRIPS TO REPRESENTATIVE INDUSTRIES

**Pre-Course Familiarization:**

Pre-course study material will be provided. Applicants should familiarize themselves with this material and the applicable sections of the Environmental Protection and Water Resources Acts and Regulations.

**Prerequisites:**

Attendance is restricted to those persons responsible for regulatory agency functions related to industrial wastewater treatment.

**Passing Grade:**

Not applicable

**Registration Fee:**

\$60.00

## **COURSE DESCRIPTION WASTE MANAGEMENT FOR EO<sub>S</sub>**

### **Purpose:**

This course is designed to increase the knowledge of the field abatement and enforcement personnel in solid waste disposal methods. An overview of the solid waste management and disposal practices in Ontario and the relevant legislation will be presented. CEU Value 3.0.

### **Scope:**

This course includes presentation and discussion of the following topics:

- A. SOURCES OF WASTES AND THEIR CHARACTERISTICS
- B. TREATMENT PROCESSES AND DISPOSAL
- C. LEGISLATION, GUIDELINES AND AVAILABLE TECHNICAL SUPPORT
- D. SITE SELECTION AND APPROVAL PROCESS
- E. ESTABLISHMENT AND OPERATION OF SITES
- F. OPERATING RECORD SYSTEM AND SITE MONITORING
- G. MONITORING AND CONTROL OF LEACHATE AND GAS
- H. SITE CLOSURE PROCESS
- I. HANDLING OF COMPLAINTS

### **Pre-Course Familiarization:**

Pre-course study material will be provided. Applicants should familiarize themselves with this material and the applicable sections of Environmental Protection Act, the relevant Regulations and the MOE Guidelines.

### **Prerequisites:**

Attendance is restricted to those persons responsible for regulatory agency functions related to waste management systems.

### **Passing Grade:**

Not applicable

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION VISIBLE EMISSIONS IDENTIFICATION CERTIFICATE**

### **Purpose:**

The Visible Emissions Identification Certificate Course is designed to train and certify personnel as being proficient in the identification of the opacities of visible emissions. It will also assist the Provincial Officer appearing in court as an expert witness. The course is a combination of lecture and demonstration, with practice. Recertification is required every twelve months.

### **Scope:**

The course covers the following topics:

- A. VISIBLE EMISSIONS - THEIR CAUSE AND REGULATION
- B. CLASSIFICATION AND IDENTIFICATION OF SOURCES
- C. PRINCIPLES OF COMBUSTION
- D. METEOROLOGICAL FACTORS IN READING VISIBLE EMISSIONS
- E. LEGAL ASPECTS AND COURTROOM APPEARANCES
- F. PRACTICE IN IDENTIFICATION OF OPACITIES OF VISIBLE EMISSIONS

### **Pre-Course Familiarization:**

When preparing to attend this course the applicant should read in advance the Visible Emissions Identification Manual, which will be sent out with pre-course material.

### **Prerequisites:**

None

### **Passing Grade:**

- (a) 70 per cent on a written exam and;
- (b) Identification of the opacity of a set number of consecutive visible emissions within the permitted deviation standards.

### **Registration Fee:**

(a) For the Certificate Course	\$80.00
(b) For Recertification	\$40.00

**COURSE DESCRIPTION  
ENVIRONMENTAL LAW****Purpose:**

This one week course is designed to upgrade the knowledge and skills of Provincial Officers who are responsible for carrying out investigations of incidents or alleged incidents of pollution of the environment. CEU Value 3.0.

**Scope:**

The following topics will be covered:

- A. JURISDICTIONAL PROBLEMS IN ENVIRONMENTAL LAW
- B. MINISTRY LEGISLATION
- C. CONSTITUTION ACT
- D. INVESTIGATIVE TECHNIQUES
- E. EVIDENCE, COURTROOM PROCEDURES
- F. PROVINCIAL OFFENSES ACT
- G. CONTROL ORDERS

**Pre-Course Familiarization:**

Pre-course study material will be provided. Those attending should carefully review the Acts and Regulations pertaining to environmental protection.

**Prerequisites:**

Attendance is restricted to Ministry staff.

**Passing Grade:**

Not applicable

**Registration Fee:**

\$60.00

**COURSE DESCRIPTION  
SEWER AND WATERMAIN DESIGN****Purpose:**

These courses, developed and conducted jointly with the Ontario Municipal Engineers Association, are intended to broaden the understanding and knowledge of personnel who are engaged in the design of Sewer and Watermain Systems. Topics covered on the first half-day are common to both courses, Sewer Design and Watermain Design. During the subsequent four-and-one-half days, each course is held separately. The selection of the course (sewer design or watermain design) should be clearly identified in the application. CEU Value 3.0.

**Scope:**

<b>Sewer Design</b>	<b>Watermain Design</b>
A. PROJECT PROCEDURES	A. PROJECT PROCEDURES
B. PHYSICAL LAYOUT OF SEWER & WATERMAIN SYSTEMS	B. PHYSICAL LAYOUT OF SEWER & WATERMAIN SYSTEMS
C. INTRODUCTION TO STORM WATER MANAGEMENT	C. WATERMAIN PIPE MATERIALS
D. SEWER PIPE MATERIALS	D. SOURCES OF WATER SUPPLY
E. HYDROLOGY IN URBAN AREAS	E. WATERMAIN INSULATION
F. SEWER DESIGN GENERAL	F. WATERMAIN APPURTENANCES AND TESTING
G. SEWER DESIGN PROBLEM CALCULATIONS	G. WATER VALVES
H. DESIGN CONSIDERATIONS WITH OTHER UTILITIES	H. HOW DESIGN AFFECTS MAINTENANCE
I. STRUCTURAL ASPECTS OF DESIGN	I. DESIGN CONSIDERATIONS WITH OTHER UTILITIES
J. SEWER APPURTENANCES AND HOW DESIGN AFFECTS MAINTENANCE	J. ESTIMATING WATER DEMAND
K. HYDRAULIC ASPECTS OF DESIGN	K. BASIC HYDRAULICS
L. PROBLEM SOLVING OF JUNCTION MANHOLES	L. DESIGN PROBLEM CALCULATIONS
M. HYDROGRAPH TECHNIQUES	M. DESCRIPTION OF LOOP ANALYSIS
N. MAJOR-MINOR CONCEPTS AND DESIGN	N. WATERMAIN CORROSION

**Pre-Course Familiarization:**

- (a) Review the lecture notes and other material mailed out for pre-course study;
- (b) Answer the pre-course study problems, which will be discussed during the course.

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**Prerequisites:**

Candidates for this course should have a good basic understanding of sewer and watermain design principles and should be employed, at least in part, in the design of Sewer and Watermain Systems.

**Passing Grade:**

Not applicable

**Registration Fee:**

For live-in students, the fee is \$565.00 (includes materials, meals and double room accommodation for five (5) days) at Nottawasaga Inn, Alliston, Ontario.

Single occupancy rate is \$695.00, which includes materials and meals for five (5) days. (Only 20 rooms are set aside.)

For commuters, the fee is \$300.00 which includes reference materials, dinner Wednesday only, lunch daily and coffee.

Registration fee must be made payable to **Municipal Engineers Association**.

## **COURSE DESCRIPTION CONSTRUCTION OF SEWERS & WATERMAINS FOR INSPECTORS**

### **Purpose:**

This course, developed and conducted jointly with the Ontario Municipal Engineers Association, is intended to broaden the understanding and knowledge of persons engaged in inspecting sewer and watermain construction projects. CEU Value 3.5.

### **Scope:**

The course includes presentations on and discussions of the following topics:

- A. BASIC ELEMENTS OF CONTRACT DOCUMENTS
- B. ENVIRONMENTAL CONSIDERATIONS
- C. CONSTRUCTION LAYOUT
- D. TRAFFIC CONTROL
- E. SEWER INSTALLATION AND TESTING
- F. SEWER AND WATERMAIN DESIGN PRINCIPLES
- G. CONSTRUCTION SAFETY
- H. EXCAVATION AND BACKFILL
- I. DEWATERING METHODS
- J. PIPE MATERIAL AND INSTALLATION
- K. WATERMAIN INSTALLATION, TESTING, CLEANING & DISINFECTION
- L. SOILS IN CONSTRUCTION
- M. BLASTING TECHNIQUE AND BLASTING CONTROL
- N. RESTORATION
- O. INSPECTOR'S DUTIES AND RECORDS
- P. TUNNELLING

### **Pre-Course Familiarization:**

Pre-course study material including calculations to be completed for classroom discussion will be provided. Personnel attending this course should be familiar with the Regulations in their own area.

### **Prerequisites:**

Those attending the course should be employed in the private or public sector where a significant portion of the job function is inspection of Sewers and Watermains construction projects.

### **Passing Grade:**

60 per cent

### **Registration Fee:**

This course will be held at Nottawasaga Inn, Alliston, Ont. For live-in students the fee is \$565.00 which includes course materials, meals and double room accommodation for 5 days. Single occupancy rate is \$695.00, (only 20 single rooms are set aside). For commuters, the fee is \$340.00 which includes lunch and coffee breaks, plus dinner on Monday, Tuesday and Wednesday. Registration fee must be made payable to **Municipal Engineers Association**.

## **COURSE DESCRIPTION INTRODUCTORY ENVIRONMENTAL NOISE**

### **Purpose:**

The course is designed for new staff and to increase on-the-job efficiency of others. It is prerequisite for the Environmental Noise Certificate Course. The purpose of the course is to familiarize the trainees with environmental noise problems and the basic qualitative and quantitative methods of noise assessment. Upon completion of the course the trainee will be able to investigate noise complaints of simple nature and will be familiar with the resources available for dealing with more complex noise problems. CEU Value 3.0

### **Scope:**

The course covers the following topics:

- A. BASIC ACOUSTICS CONCEPTS
- B. INTRODUCTORY ENVIRONMENTAL NOISE THEORY
- C. SOUND LEVEL MEASUREMENTS AND BASIC INSTRUMENTATION
- D. INTRODUCTION TO  $Leq$  AND OTHER NOISE DESCRIPTORS
- E. MEASUREMENT AND PREDICTION OF TRAFFIC NOISE
- F. SOUND LEVEL ADJUSTMENTS
- G. ESTABLISHMENT OF NOISE CRITERIA
- H. NOISE CONTROL BY-LAW OVERVIEW
- I. INVESTIGATION OF STATIONARY SOURCE NOISE, IMPACT INDUSTRIAL NOISE AND BLASTING
- J. NOISE COMPLAINT INVESTIGATION PROCEDURE
- K. WORKSHOPS OF SIMPLE SOUND LEVEL MEASUREMENTS AND TRAFFIC NOISE CALCULATIONS
- L. EXAMINATION

### **Pre-Course Familiarization:**

Pre-course study material, including the Ministry manual, will be provided. Those attending should review and be familiar with format of the Model Municipal Noise Control By-Law.

### **Prerequisites:**

Desirably Grade 12 academic standing.

### **Passing Grade:**

70% for Workshop Exercises and Examination.

### **Registration Fee:**

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\$100.00

**COURSE DESCRIPTION  
ENVIRONMENTAL NOISE CERTIFICATE****Purpose:**

The course is designed to upgrade the knowledge of staff currently involved in noise investigations of simple nature. It consists of two parts, the course and a take-home assignment. Upon successful completion of the course and the take-home assignment, the trainee will be qualified to fulfill the duties of a Municipal Noise Control Officer. A Certificate of Competency in Environmental Noise Technology will be awarded. CEU Value 3.0.

**Scope:**

The course covers the following topics:

**PART 1**

- A. COMMUNITY NOISE CHARACTERISTICS AND AUTOMATIC NOISE MONITORS
- B. IMPULSE NOISE MEASUREMENTS, STANDARDS AND CRITERIA
- C. FREQUENCY ANALYSIS OF NOISE, TONALITY, TAPE RECORDING
- D. VIBRATION IMPACT ANALYSIS, MEASUREMENT AND CRITERIA
- E. BLASTING NOISE AND VIBRATION IMPACT ASSESSMENT, MEASUREMENTS AND PREDICTION CALCULATION
- F. INDUSTRIAL AND COMMERCIAL NOISE SOURCES IMPACT ANALYSIS, ADVANCED PROCEDURES
- G. NOISE AND VIBRATION ABATEMENT TECHNIQUES
- H. NOISE CONTROL BY-LAW (COMPREHENSIVE OPTION), PREPARATION AND IMPLEMENTATION OF A NOISE BY-LAW
- I. WORKSHOPS: INSTRUMENTATION SELECTION, MEASUREMENTS, COMPLAINT INVESTIGATION (CASE STUDIES)
- J. EXAMINATION

**PART 2 — TAKE-HOME ASSIGNMENT**

SELECTED PROBLEMS IN ENVIRONMENTAL ACOUSTICS INCLUDING CASE STUDIES AND DETAILED REPORTS ON TRAINEES' OWN NOISE INVESTIGATIONS.

This part is compulsory for those wishing to receive a Certificate to fulfill duties of a Municipal Noise Control Officer.

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## **PRE-COURSE FAMILIARIZATION:**

Pre-course study material, including the Ministry manual, will be provided. Those attending should be familiar with the format of the Model Municipal Noise Control By-Law, and should review basic procedures and guidelines from the noise By-Law document.

### **Prerequisites:**

Successful completion of the Introductory Environmental Noise Course, or prior documented formal training in acoustics subjects at the Introductory Course level.

### **Passing Grade:**

70% for Workshop Exercises and Examination. 85% for the take-home assignment.

### **Registration Fee:**

\$100.00.

## **COURSE DESCRIPTION ENVIRONMENTAL NOISE IN LAND USE PLANNING**

### **Purpose:**

The Certificate Course on Environmental Noise in Land use Planning discusses the impact of noise on land use. It is designed for individuals responsible for the preparation, review and approval of new land use development including municipal and provincial planning and building department staff, urban planners, engineers, architects and developers. Upon successful completion of the course, the trainee will be qualified to carry out noise studies as well as prepare and submit acoustical reports on new development applications. A Certificate of Competency in Environmental Noise in Land Use Planning will be awarded. CEU Value 3.0.

### **Scope:**

The course includes a review of relevant topics included in the Environmental Noise Certificate course and covers the following subjects:

- A. LAND USE PLANNING CONCEPTS AND PROCEDURES
- B. PLANNING PROCESS IN ONTARIO
- C. ANALYSIS OF COMMUNITY NOISE
- D. SOUND LEVEL LIMITS AND CRITERIA
- E. PREDICTION OF ROAD TRAFFIC AND TRAIN NOISE LEVELS
- F. AIRCRAFT NOISE CONTOURS; ANALYSIS OF NOISE CONTROL MEASURES
- G. PREDICTION OF SOUND BARRIER ATTENUATION
- H. BUILDING ACOUSTICS AND MATERIAL
- I. MEASUREMENT OF SOUND WITH SOUND LEVEL METERS
- J. CALCULATION WORKSHOP
- K. REPORT WRITING AND PROCEDURES

### **Pre-Course Familiarization:**

Pre-course study material, including manuals will be provided. Candidates, who have not had suitable previous formal training are advised to review the relevant parts of the Introductory and Certificate Environmental Noise courses.

### **Passing Grade:**

Candidates achieving a passing grade of 70% will be awarded a Certificate denoting successful completion of the course.

### **Registration Fee:**

\$100.00

## **COURSE DESCRIPTION ENVIRONMENTAL RESPONDERS**

### **Purpose:**

The Environmental Responders Course is designed to train the Emergency Response Personnel (ERPs) of the Ministry of the Environment in their role at the scene of an environmental incident. By the conclusion of instruction, the candidates will have an opportunity to acquire the knowledge, skills and attitudes necessary to participate as responders to actual situations. This course is one week in duration. CEU Value 3.0.

### **Scope:**

The course covers the following topics:

- A. LEGISLATION
- B. ROLE OF DISCHARGER
- C. MOE POLICY ROLE
- D. POWER, ROLE AND RESPONSIBILITY OF ERP
- E. DEALING WITH INCIDENTS
- F. EMERGENCY RESPONSE HAZARDS AND PROTECTIVE EQUIPMENT
- G. MEDIA COMMUNICATION
- H. SAMPLING TECHNIQUES INCLUDING LEGAL SAMPLES
- I. COUNTERMEASURES, CLEAN-UP AND DISPOSAL
- J. RESPONDER TECHNOLOGIES AND RESOURCES
- K. DOCUMENTATION
- L. CASE STUDIES

### **Pre-Course Familiarization:**

Those attending should be familiar with MOE policy and operating procedures.

### **Prerequisites:**

Attendance is restricted to Ministry staff who have responsibilities relating to environmental incidents.

### **Passing Grade:**

70 per cent

### **Registration Fee:**

\$60.00

## **COURSE DESCRIPTION WASTE DISPOSAL BY LANDFILLING**

### **Purpose:**

This course, developed jointly with the Ontario Municipal Engineers Association and the Ontario Chapter of Government Refuse Collection and Disposal Association, is designed to increase the knowledge and skills of the landfill site owners and site operation personnel. The course is structured to present background information about landfill design, development, operation and closure. CEU Value 3.0.

### **Scope:**

The course covers the following topics:

- A. LEGISLATION & CERTIFICATE OF APPROVAL
- B. SITE SELECTION & DESIGN PROCEDURES
- C. SITE DEVELOPMENT
- D. SITE OPERATION
- E. INSTALLATION & OPERATION OF LEACHATE & GAS CONTROL SYSTEMS
- F. EQUIPMENT (OPERATION & MAINTENANCE)
- G. PROCEDURES FOR RECEIPT & DISPOSAL OF PROBLEM WASTES
- H. WINTER OPERATION
- I. STORM WATER DRAINAGE
- J. CLOSURE AND PERPETUAL CARE

### **Pre-Course Familiarization:**

The course candidates should review the Environmental Protection Act, Part V, The Environmental Assessment Act, Ontario Regulation 309 of the Environmental Protection Act and the manual "Waste Disposal by Landfilling".

The candidate must be employed in the management and operation of a waste disposal system by landfilling.

### **Passing Grade:**

Not applicable.

### **Registration Fee:**

\$60.00

**COURSE DESCRIPTION**  
**WASTE MANAGEMENT IN THE METAL FINISHING INDUSTRY****Purpose:**

This 3-day training program is designed for managers and owner/operators of surface finishing operations. The objectives of this course are to highlight the increasingly critical requirement for prevention of pollution of the natural environment and to emphasize importance of staff training in pollution control techniques in the metal finishing industry.

**Scope:**

The course covers the following topics:

- A. REQUIREMENTS FOR POLLUTION PREVENTION
- B. LEGISLATION AND GUIDELINES
- C. WASTE GENERATION AND POLLUTION PREVENTION
- D. POLLUTION SOURCES
- E. PLANNING FOR POLLUTION CONTROL
- F. IN-PLANT CONTROLS
- G. METHODS OF WASTEWATER TREATMENT
- H. EVALUATING COSTS OF WASTEWATER TREATMENT

**Pre-Course Familiarization:**

Pre-Course study material will be provided. In preparation for the course the applicant will review the course material and be prepared to take active part in class discussions.

**Prerequisites:**

The candidate must be employed as a manager or in a senior decision-making position.

**Passing Grade:**

Not applicable

**Registration Fee:**

\$60.00

**COURSE DESCRIPTION**  
**PUMP OPERATION****Purpose:**

This course, developed jointly with the Ontario Municipal Engineers Association, is designed to increase the knowledge and skills of personnel involved in operation and maintenance of all forms of pumping and allied equipment. It is an extension of training for operators of water and wastewater utilities. CEU Value 3.0.

**Scope:**

The course which includes hands-on participation covers the following topics:

- A. CHARACTERISTICS OF MATERIALS PUMPED
- B. PUMPING THEORY/PRINCIPLES (HYDRAULICS & ENERGY)
- C. TYPES OF PUMPS FOR VARIOUS APPLICATIONS
- D. CENTRIFUGAL PUMPS
- E. POSITIVE DISPLACEMENT PUMPS
- F. PUMP CONTROLS (IN PROCESS MANAGEMENT & SAFETY)
- G. VALVES
- H. MOTORS
- I. SAFETY

**Pre-Course Familiarization:**

Pre-course study material will be provided.

**Prerequisites:**

The candidate must be employed in operation/maintenance of a water or wastewater utility.

**Passing Grade:**

70 per cent

**Registration Fee:**

\$60.00

## **COURSE DESCRIPTION PROFESSIONAL DEVELOPMENT FOR INSTRUCTORS OF MOE/MEA TECHNICAL COURSES**

There is a clear and significant relationship between technical training effectiveness and quality of instruction. The Training and Certification Section offers the instructors of its technical courses an opportunity to enhance the quality of presentation and instruction by developing skills in course content sequencing and delivery. This two day seminar is designed to upgrade the skills and knowledge of instructors of technical training courses. CEU Value 1.5.

### **Scope:**

The format will include short presentations, two intensive practice teaching sessions, group and videotape feedback, lecturettes, and group discussions will be utilized.

The course covers the following topics:

- A. PRINCIPLES OF ADULT LEARNING AND THE LEARNING ENVIRONMENT
- B. PREPARING AND PLANNING LESSON PLANS, LEARNING OBJECTIVES
- C. COURSE/TOPIC DESIGN
- D. TEACHING/DELIVERY TECHNIQUES
- E. AUDIO VISUAL SELECTION/PREPARATION
- F. PRESENTATION SKILLS

### **NOTE:**

This seminar is limited to Instructors of MEA/MOE courses only.

### **Pre-Course Familiarization:**

Those attending will be required to have completed pre-course preparation of short presentations.

### **Passing Grade:**

A certificate of attendance will be issued.

### **Registration Fee:**

Not applicable.

**PROGRAM SCHEDULE 1989/90**

<b>PROGRAM</b>	<b>CAPACITY</b>	<b>DATES</b>	<b>LOCATION</b>	
Basic Wastewater Treatment	25	Sept 11-15 Jan 8-12 Feb 5-9 Mar 19-23	1989 1990 1990 1990	Training Centre Training Centre Training Centre Training Centre
Activated Sludge Process	25	Oct 2-6 Dec 11-15 May 14-18	1989 1989 1990	Training Centre Training Centre Training Centre
Wastewater Sludge Technology	25	Feb 26-Mar 2	1990	Training Centre
Digester Gas Systems	25	Oct 30-Nov 3	1989	Training Centre
O & M Wastewater Collection System	25	Jan 15-19 Apr 23-27	1990 1990	Training Centre Training Centre
O & M Wastewater Pump Stations	24	Nov 6-10 May 7-11	1989 1990	Training Centre Training Centre
Control Of Liquid Industrial Waste	25	Dec 4-8 May 7-11	1989 1990	Training Centre Training Centre
Basic Water Treatment Operation	25	Oct 23-27 Dec 4-8 Feb 19-23 May 28-Jun 1	1989 1989 1990 1990	Training Centre Training Centre Training Centre Training Centre
Surface Water Treatment	25	Nov 6-10 Jan 22-26 Apr 23-27	1989 1990 1989	Training Centre Training Centre Training Centre
O & M of Water Distribution Systems	25	Sept 18-22 Feb 5-9	1989 1990	Training Centre Training Centre
Small Water Supply Systems	25	Mar 26-30	1990	Training Centre
Basic Gas Chlorination	25	Nov 27-Dec 1 Jan 29-Feb 2 Mar 5-9 May 7-11	1989 1990 1990 1990	Training Centre Training Centre Training Centre Training Centre
Laboratory Skills for Plant Operators	15	Sept 18-22 Feb 12-16	1989 1990	Training Centre Training Centre
Confined Space Entry	18	Nov 20-24 Jan 22-26 Feb 19-23 May 28-Jun 1	1989 1990 1990 1990	Training Centre Training Centre Training Centre Training Centre

<b>PROGRAM</b>	<b>CAPACITY</b>	<b>DATES</b>	<b>LOCATION</b>
Instrumentation In Process Control	25	Oct 16-20 Feb 12-16 Mar 26-30	1989 Training Centre 1990 Training Centre 1990 Training Centre
Preventive Maintenance	24	Oct 16-20 Dec 11-15 Mar 5-9	1989 Training Centre 1989 Training Centre 1990 Training Centre
Adv Water/Wastewater	25	Apr 2-6	1990 Training Centre
Water Treatment for EO's	25	Mar 12-16	1990 Training Centre
Wastewater Treatment for EO's	25	Sept 25-29	1989 Training Centre
Air Abatement for EO's	25	Jan 8-12	1990 Training Centre
Industrial Wastewater for EO's	25	Nov 20-24	1989 Training Centre
Waste Management for EO's	25	Mar 12-16	1990 Training Centre
Visible Emissions Identification	25	TBA TBA	1989 TBA 1990 TBA
Environmental Law	24	Oct 30-Nov 3 Apr 30-May 4	1989 Training Centre 1990 Training Centre
Sewer & Watermain Design	60	Sept 18-22	1989 Alliston, Ont.
Sewer & Watermain Construction Inspectors	60	Mar 5-9	1990 Alliston, Ont.
Introduction Environmental Noise	25	Sept 25-29 Apr 23-27	1989 MOE, Laboratory 1990 MOE, Laboratory
Environmental Noise Certificate	25	Oct 23-27 May 7-11	1989 MOE, Laboratory 1990 MOE, Laboratory
Environmental Noise In Land Use Planning	50	Nov 27-Dec 1 Jun 4-8	1989 MOE, Laboratory 1990 MOE, Laboratory
Environmental Responders	25	Oct 30-Nov 3 Mar 19-23	1989 Training Centre 1990 Training Centre
Professional Development for Instructors of MOE/MEA Technical Courses	12	Oct 2-6 Jan 15-19 Jan 29-Feb 2 Feb 26-Mar 2	1989 Training Centre 1990 Training Centre 1990 Training Centre 1990 Training Centre
Metal Finishing	25	Jan 15-19	1990 Training Centre
Solid Waste Management By Landfill	25	Jun 18-22	1990 Training Centre
Pump Operation	25	Jun 4-8	1990 Training Centre

HOTEL	TELEPHONE	SINGLE	DOUBLE
BRISTOL PLACE 950 Dixon Rd Mississauga	675-9444	\$ 99.00	\$ 99.00
CAMBRIDGE HOTEL Dixon Road/Hwy 401 Mississauga	249-7671	59.00	59.00
CARA INN 6257 Airport Road Mississauga	678-1400	64.00	64.00
CONSTELLATION HOTEL 900 Dixon Road Mississauga	675-1500	69.00	80.00
HERITAGE INN 385 Rexdale Blvd Etobicoke	742-5510	45.00	55.00
HOLIDAY-INN (Airport) 970 Dixon Road Mississauga	675-7611	69.00	84.00
HOLIDAY-INN (Bramalea) 30 Peel Centre Drive Brampton	792-9900	59.00	74.00
HOWARD JOHNSON (Airport) 801 Dixon Road Mississauga	675-6100	69.00	79.00
JOURNEY'S END 5 Rutherford Rd S Brampton	452-0600	45.88	52.88
MARRIOTT HOTEL 901 Dixon Road Mississauga	674-9400	134.00	144.00
METRO HOTEL 100 Britannia Rd. E Mississauga	890-5700	44.50	49.50
QUALITY INN 50 Britannia Road Mississauga	890-1200	49.00	54.00

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<b>HOTEL</b>	<b>TELEPHONE</b>	<b>SINGLE</b>	<b>DOUBLE</b>
RAMADA INN 544 Dixie Road Mississauga	624-1144	\$ 78.00	\$ 78.00
RELAX INN 5599 Ambler Drive Mississauga	624-9500	42.95	48.95
SKYLINE HOTEL 655 Dixon Road Mississauga	244-1711	65.00	65.00
WELCOME INN 30 Clarke Blvd Brampton	454-1300	49.00	55.00

The above government rates were provided by the management of each hotel and are subject to change with time. When requesting reservations, the actual government rate should be confirmed.

To qualify for the above room rates, please inform the hotel registration clerk that you are attending a Ministry of the Environment course.

## **Additional Services**

### **1. Certification of Water and Wastewater Utility Operators:**

With the co-operation and leadership of the Ontario Municipal Engineers Association, the Ministry has established the Ontario Voluntary Certification Program for Operators of Water and Wastewater Utilities. Development of the Program was assisted by representatives of the Ontario Chapter American Public Works Association, Ontario Section American Water Works Association, Ontario Municipal Water Association, Pollution Control Association of Ontario and a selected group of operators representing the Ministry of the Environment, municipal and industrial utilities.

The utility owners and operators are the basic link with the public for an industry responsible for producing potable water and controlling pollution of our natural water resources. The program enhances the operator's professional status by awarding those who meet the program criteria with a certificate of competency which will be recognized in Ontario and in time throughout Canada and possibly certain States.

Qualification for a Certificate of Competency requires a designated level of knowledge operating experience and successful completion of an appropriate examination for the class of certificate for which eligibility has been established. The classification level of the utility determines the level of operator certification.

Until April, 1990, a Restricted Certificate of Competency will be issued. This certificate is based on experience and knowledge, requires the recommendation of the Supervisor, but does NOT require examination. Those who receive a restricted certificate are expected to work towards removing the restriction by applying for and passing the prescribed examination. To assist operators to achieve this, an Education and Certification Resource Guide is available. Please direct enquiries regarding the Certification Program to:

Certification Officer  
Training and Certification Section  
135 St. Clair Avenue West  
Toronto, Ontario  
M4V 1P5

Telephone: (416) 456-0266

## 2. In-House Courses

Our Curriculum Development and Training Officers are a group of competent adult education professionals, committed to improving technical effectiveness of personnel engaged in the protection and upgrading of the natural environment. The Curriculum Development and Training Officers are available to advise and assist professional industrial and government organizations in identifying training needs, designing training programs to meet the needs, and delivering and evaluating training programs.

Although we prefer to conduct programs at our Brampton location, we may conduct some of our regular calendar courses for an organization at their location when numbers and facilities warrant. It is also possible to adapt some programs to meet unique needs. In-house courses can result in greater training effectiveness with considerable cost saving.



Ministry  
of the  
Environment  
Ontario

## Request/Authorization for Staff Development for Courses and Conferences

### 1. Employee Data

Policy Reference - Manual of Administration, Volume 2, Section 12

Nomination Day	Closing Month	Year
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Surname & Initials	Usually Called	Male <input type="checkbox"/> Female <input type="checkbox"/>	Smoker <input type="checkbox"/> Non Smoker <input type="checkbox"/>
Position Title	Classification Title		Office services <input type="checkbox"/> Other <input type="checkbox"/>
Employee Category Permanent <input type="checkbox"/> Probation <input type="checkbox"/> Contract <input type="checkbox"/> Temporary <input type="checkbox"/> Other <input type="checkbox"/>	Length of Continuous Service		Work Phone Number
Sponsoring Ministry or Agency	Branch/Region/Office/Board/Committee		
Work Mailing Address			

Home Address

### 2. Course/Conference Data

Course/Conference Title	Course/Conference Duration From _____ To _____
Name & Address of Organization delivering Course/Conference if other than Ministry or Human Resources Secretariat	
Course/Conference Category	
<input type="checkbox"/> Full-Time Day <input type="checkbox"/> Part-Time Evening <input type="checkbox"/> Part-Time Day <input type="checkbox"/> Correspondence	<input type="checkbox"/> Managerial/Supervisory <input type="checkbox"/> Interpersonal/Personal <input type="checkbox"/> Technical/Professional <input type="checkbox"/> Secretarial/Clerical
Source of Program Internal: Ministry <input type="checkbox"/> HRS <input type="checkbox"/> MGS <input type="checkbox"/> External: University <input type="checkbox"/> CAAT <input type="checkbox"/> Professional <input type="checkbox"/> Other <input type="checkbox"/>	
Results Expected by Participant (Potential benefit of this course/conference to the Ministry)	Results Expected by Manager (Potential benefit of this course/conference to the Ministry)

Is this Course/Conference listed in the Plan of Action of the Employee's most recent Performance Management Review?  Yes  No

### 3. Financial Information (Completed by Director)

a) Assistance Recommended - Program Requiring Absence From Work	b) Assistance Recommended - Req. 30 Only - Program Not Requiring Absence From Work <input type="checkbox"/> 100% Reimbursement <input type="checkbox"/> 2/3 Initial Payment      \$ _____ <input type="checkbox"/> 1/3 Subsequent (Final) Payment      \$ _____ <input type="checkbox"/> 50% Reimbursement      \$ _____ <input type="checkbox"/> Other      \$ _____ <input type="checkbox"/> Denied Assistance
b) Course Cost (if applicable)      \$ _____	

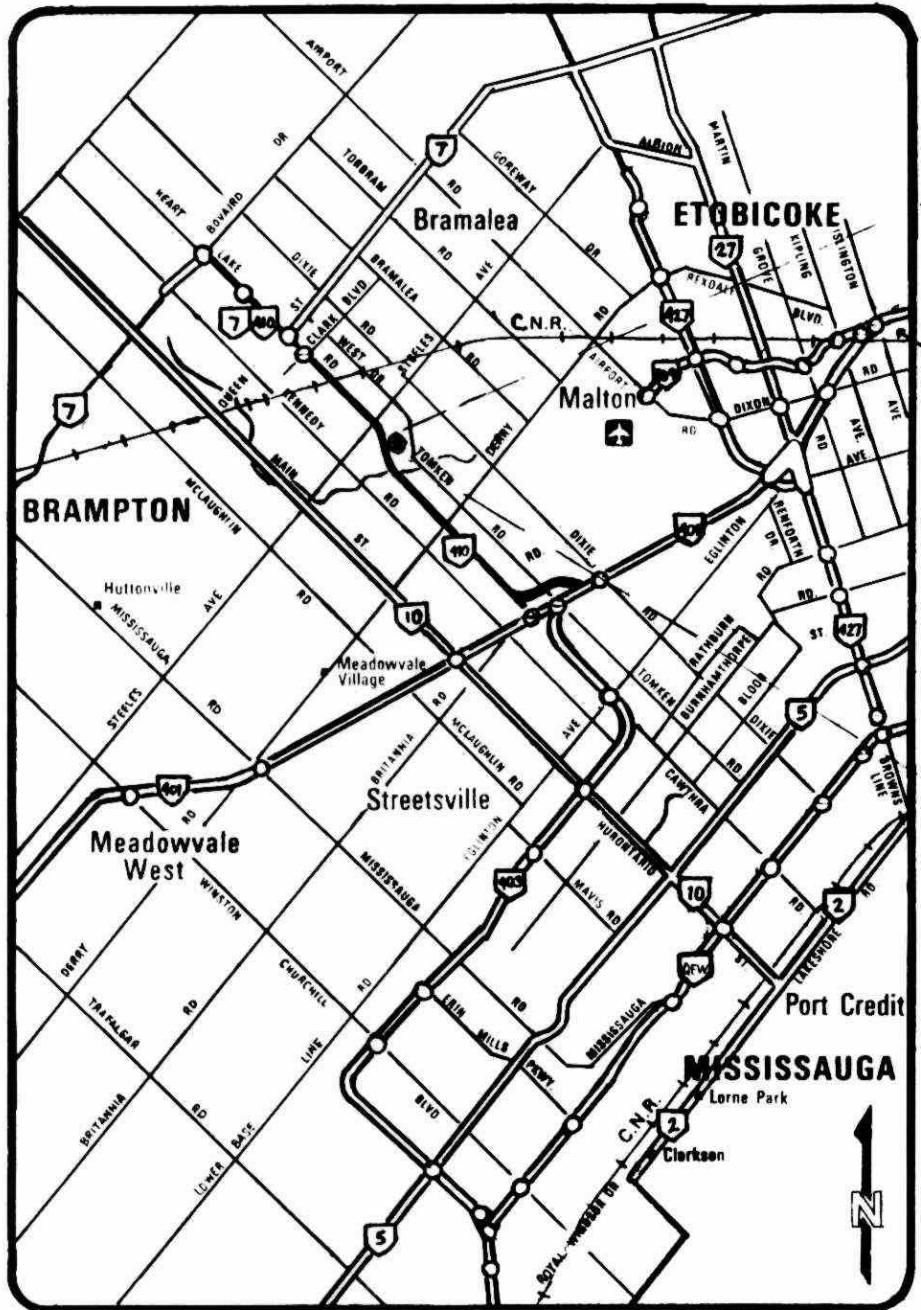
4. Signatures and Codes 	Employee	Recommended by	Date
Authorized by	Staff Development Co-ordinator	Budget Code	Ministry Nomination Priority Number

### For Use by Human Resources Secretariat (HRS)

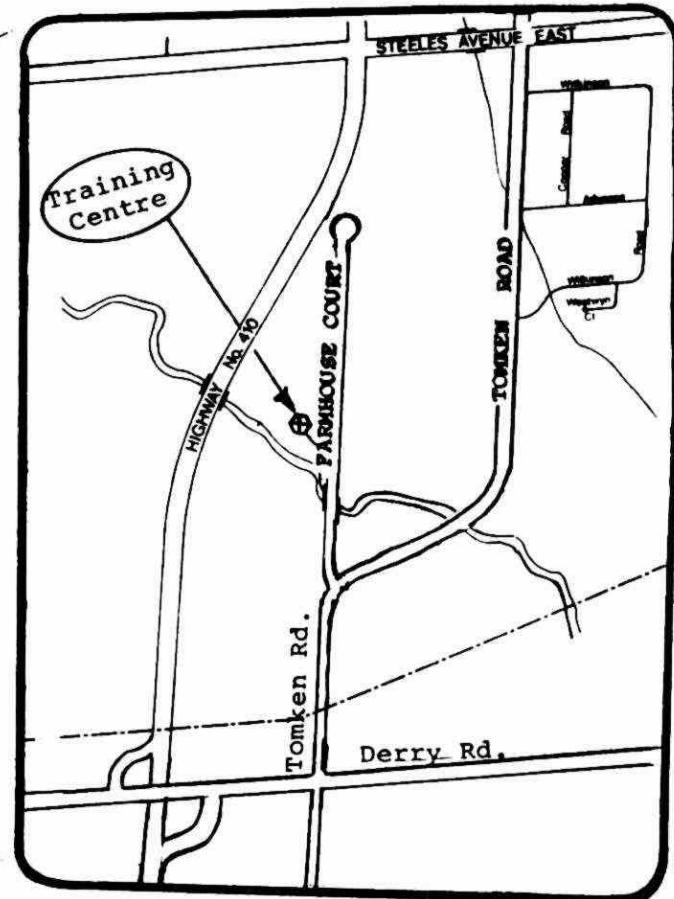
Accepted <input type="checkbox"/>	Course Oversubscribed <input type="checkbox"/>	Not Eligible <input type="checkbox"/>	Acknowledgement sent	Day	Month	Year
Course Coordinator			Staff Development Clerk			

1511 (2/87)

Part 1 and 2 - Ministry Staff Development Section for Signature. Upon approval, Part 1 will be sent to the Human Resources Secretariat if the HRS is the source of the training.



MOE Lab



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